

Serial No. 09/625,960 (Atty. Docket No. Aguilar 24-1-1 (LCNT/122485))
Amendment dated March 7, 2005
Reply of Office Action of December 7, 2004

REMARKS

This response is a full and complete response to the non-final Office Action mailed December 7, 2004. In the Office Action, the Examiner noted that claims 1-44 are pending of which claims 41-44 are withdrawn from consideration, claims 1-4, 6-12, 14-16, 20-22, 24, 26-29, 33-35, 37, 39 and 40 stand rejected and claims 5, 13, 17-19, 23, 25, 30-32, 36 and 38 are objected to as being dependent from a rejected base claim.

By this response, Applicants have amended independent claims 1, 8, 15 and 28 and cancelled dependent claims 3 and 10.

In view of both the amendments presented above and the following discussion, Applicants submit that none of the claims now pending in the application are anticipated or obvious under the respective provisions of 35 U.S.C. §102 and 103. Applicants believe that this application is now in condition for allowance.

ALLOWABLE SUBJECT MATTER

The Examiner has objected to claims 5, 13, 17-19, 23, 25, 30-32, 36 and 38 as being dependent upon a rejected base claim. The Examiner states that these claims would be allowable subject matter if rewritten in independent form including all the limitations of the base claim and any intervening claims.

Applicants thank the Examiner for indicating the allowable subject matter with respect to claims 5, 13, 17-19, 23, 25, 30-32, 36 and 38. However, in view of discussion set forth herein, Applicants believe that rejected base claims 1, 8, 15 and 28 (and all intervening claims) are allowable. It therefore follows that Applicants believe that dependent claims 5, 13, 17-19, 23, 25, 30-32, 36 and 38, as they stand, are also allowable. Therefore, Applicants respectfully request that the foregoing objection to claims 5, 13, 17-19, 23, 25, 30-32, 36 and 38 be withdrawn.

In any event, Applicants expressly reserve the right to amend the objected to claims in a subsequent response, if necessary.

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REJECTIONS UNDER 35 U.S.C. §102

Claims 1-4, 6-12 and 14

Claims 1-4, 6-12 and 14 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,765,127 issued to Nishiguchi (hereinafter "Nishiguchi"). Applicants have amended claims 1 and 8 and cancelled claims 3 and 10.

Amended claims 1 and 8 now call for, among other elements:

"means for separately encoding the voiced portion and the unvoiced portion of the audio signal, wherein the means for separately encoding further includes means for computing LPC coefficients for a speech segment and means for transforming LPC coefficients into line spectral frequencies (LSF) coefficients corresponding to the LPC coefficients."

Nishiguchi fails to teach, show, or suggest that the encoding takes place separately as claimed by Applicants, that LPC coefficients are computed as claimed by Applicants, and that the LPC coefficients are transformed into the line spectral frequency (LSF) coefficients as claimed by Applicants. Nishiguchi does mention LPC at various locations in his patent. But nowhere in the Nishiguchi patent is there a mention of "line spectral frequency" or "LSF" or transformation of LPC coefficients to any other type of coefficients.

Since Nishiguchi does not teach, show, or suggest the particular elements defined by Applicants, Nishiguchi clearly does not teach, show or suggest each and every element of Applicants' claimed invention. Applicants submit that claims 1 and 8 are not anticipated by the Nishiguchi patent. Claims 2, 4, 6, and 7 depend, either directly or indirectly, from claim 1 and claims 9, 11, 12, and 14 depend, either directly or indirectly, from amended claim and all claims including all the limitations of their respective base claim and intervening claims. Since claims 1 and 8 are not anticipated by Nishiguchi, it is submitted that those claims dependent from claims 1 and 8, namely, claims 2, 4, 6, 7, 9, 11, 12, and 14, are also not anticipated by Nishiguchi. Therefore, it is submitted that claims 2, 4, 6, 7, 9, 11, 12, and 14 are allowable under 35 U.S.C. §102.

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REJECTIONS UNDER 35 U.S.C. §103

Claims 15, 16, 20-22, 24, 26-29, 33-35, 37, 39 and 40

Claims 15, 16, 20-22, 24, 26-29, 33-35, 37, 39 and 40 stand rejected under 35 U.S.C. §103(a) as being obvious over Nishiguchi in view of U.S. Patent 6,507,814 issued to Gao (hereinafter "Gao"). Applicants have amended claims 15 and 28 to remove alternative language and clarify that aspect of the present invention. Applicants respectfully traverse the rejection.

The combined references of Nishiguchi and Gao disclose speech codecs. In this combination, the Examiner has stated that, "Nishiguchi ... does not explicitly teach performing the voiced, unvoiced decisions on a midframe/subframe basis, however Gao teaches performing audio coding ... calculating an [sic] excitation sequence ... and performing the pitch search on a subframe basis." Applicants agree that Nishiguchi does not explicitly teach these aspects on a midframe or subframe basis, either explicitly or implicitly. Applicants agree with the Examiner that Gao performs certain processing activity on a subframe basis as outlined in the Gao patent, Col. 8, lines 53-63. But Applicants disagree with the Examiner that the combination of Nishiguchi and Gao make Applicants' claimed invention obvious.

Applicants define in claims 15 and 28 a system that includes at least:

*first means for determining for each frame a ratio between voiced and unvoiced components of the audio signal on the basis of the fundamental frequency of each frame, the ratio being defined as a **voicing probability**, the means for determining the voicing probability comprising:*

*means for determining at least a **pitch period**, a **mid-frame pitch period**, and a **mid-frame voicing probability** of the audio signal; and*

*means for quantizing at least the **pitch period**, the **voicing probability**, the **mid-frame pitch period**, and the **mid-frame voicing probability**.*

Accordingly, Applicants require that at least four parameters be determined and then quantized by the system. The at least four quantities are:

1. pitch period of the audio signal;
2. voicing probability of the audio signal;

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3. mid-frame pitch period of the audio signal; and
4. mid-frame voicing probability of the audio signal.

Neither Gao nor Nishiguchi, separately or in combination, teach, show or suggest that these four parameters are determined by their combined system and then quantized by their system. Gao clearly indicates that

More specifically, LP analysis at the block 239 is performed twice per frame but only a single set of LP parameters is converted to line spectrum frequencies (LSF) and vector quantized using predictive multi-stage quantization (PMVQ). The speech frame is divided into subframes. Parameters from the adaptive and fixed codebooks 257 and 261 are transmitted every subframe. The quantized and unquantized LP parameters or their interpolated versions are used depending on the subframe. An open-loop pitch lag is estimated at the block 241 once or twice per frame for PP mode or LTP mode, respectively. (col. 8, lines 53-63). [Emphasis supplied].

Gao decides to use only one set of values from a frame rather than both of the sets measured from the two subframes. Gao further decides that only that set of values needs to be quantized. Even if Gao and Nishiguchi were to determine all the parameters enumerated by Applicants in claims 15 and 28, the combined teachings of Gao and Nishiguchi would still fail to teach or suggest Applicants' claimed invention because Gao and Nishiguchi would not include quantizing at least those four parameters.

In light of the remarks above, it is submitted that neither Nishiguchi nor Gao, separately or in combination, teach, show, or suggest the particular system defined by Applicants in claims 15 and 28. Hence, it is submitted that Applicants' claimed invention defined in claims 15 and 28 would not have been obvious to a person skilled in the art upon a reading of the Nishiguchi and Gao references at the time the claimed invention was made. Therefore, Applicants believe that amended claims 15 and 28 are allowable under 35 U.S.C. §103.

Applicants submit that dependent claims 16, 20-22, 24, 26-27, 29, 33-35, 37, 39 and 40, which depend directly or indirectly from amended independent claims 15 and 28, would not have been obvious to a person skilled in the art upon a reading of the Nishiguchi and Gao references at the time the claimed invention was made. Therefore,

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it is believed that claims 16, 20-22, 24, 26-27, 29, 33-35, 37, 39 and 40 are allowable under 35 U.S.C. §103

CITATION OF ADDITIONAL REFERENCES

The Examiner has cited, but not applied, a number of references listed on the Notice of References Cited accompanying the present Office Action. These references have been reviewed by Applicants' representative and are believed to be no more than cumulative over the references already applied to the claims. Since these references were not applied against the claims, it is assumed that the Examiner concurs in this viewpoint.

In light of the review of these references by Applicants' representative, it is believed that Applicants' claimed invention would not have been obvious to one having ordinary skill in the art at the time Applicants' invention was made upon a reading of cited references of Nishiguchi ('0,388 and '8,388), Villette, Udaya Bashkar ('664 and '092), Zinser, Huang ('500 and '407), and McCree ('406 and '477), separately or in combination.

CONCLUSION

Thus, Applicants submit that none of the claims presently in the application are anticipated or obvious under the respective provisions of 35 U.S.C. §102 and §103. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

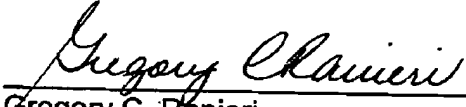
If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested

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that the Examiner telephone Gregory C Ranieri, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

Dated: MARCH 7, 2005



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